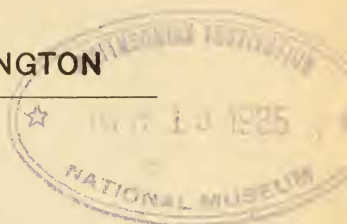


PROCEEDINGS
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BIOLOGICAL SOCIETY OF WASHINGTON



FOUR NEW FRESH-WATER FISHES FROM BRAZIL,
VENEZUELA AND PARAGUAY.

BY GEORGE S. MYERS.

Two Cyprinodonts, a Callichthyid catfish and a genus of Cichlids are herewith described as new from the collections of the United States National Museum. It will be noted that two of the new forms are based on aquarium specimens without accurate locality. Several of the many aquarium fishes that have recently been brought into New York from Manáos and Pará seem to be unknown but I have hesitated to describe them because of the difficulty or impossibility of obtaining exact locality data. The present two species, however, seem to be so well-marked (one of them represents a new genus) that there can be no great objection to naming them from the material at hand, especially since we can be fairly certain of the general area from which they came.

Pterolebias zonatus, new species.

Holotype.—U. S. N. M. 92190, an adult female with eggs, 35 mm. standard length, from a pond in the estate of Guarico, Orinoco Basin of Venezuela, collected in 1928 by a representative of the International Health Board of the Rockefeller Foundation as a fish of value in mosquito control.

The single specimen of this fish was received in the same lot which included the type of *Austrofundulus transilis* Myers (*Proc. Biol. Soc. Washington*, vol. 45, 1932, p. 159¹). It appears to be similar to *Pterolebias longipinnis* Garman (*Mem. Mus. Comp. Zool.*, vol. 19, no 1, 1895, pp. 141,

¹ It should be noted that the "*Fundulus* spec. ? aus Venezuela" reported by Ladewig which I mentioned in connection with *Austrofundulus*, was later found not to be a Venezuelan fish. I was able to purchase a pair of the offspring of Ladewig's fish through the assistance of Mr. Hugo Weise of Braunschweig, editor of the *Wochenschrift für Aquarienkunde und Terrarienkunde*. These two specimens, now U. S. N. M. 94217, were bred from a pair collected by Dr. R. Oeser of Berlin at Finca del Rosario (1000 meters altitude), Bola de Oro, Pacific slope of Guatemala, in January, 1932. They are *Profundulus punctatus* (Günther).

142, Santarem; Myers, *Ann. Mag. Nat. Hist.*, (9) vol. 19, 1927, p. 117 and footnote) in the greatly compressed caudal peduncle, and the attenuate pelvic fins. It appears to differ chiefly in the more anterior dorsal position, the slightly higher anal count, and the dark vertical stripes on the side.

Body considerably compressed, especially the caudal peduncle, but the abdomen is considerably distended with eggs. Dorsum flattened, the profile moderately convex to the very posterior dorsal fin which originates above the base of the fourteenth anal ray or about three times as far from the vertical of the snout tip as from the vertical of end of hypural. Fins mostly so broken that their length can not be given but it is evident that the anterior anal rays are long, possibly as long as the head, and the comparatively uninjured pelvics extend at least as far as the base of the eleventh anal ray. A small patch of teeth on the head of the vomer.

Dorsal badly broken, count probably about 10. Anal 22. Pectoral 13. Scales lateral 34, plus a few on caudal base; transverse from mid-dorsal series to anal origin 12; predorsal scales irregular, about 28 or 29 to above pupil; 16 around caudal peduncle.

Measurements of holotype in millimeters.—Standard length 35.0. Depth 11.0. Head 10.8. Eye 3.2. Interorbital (not bony) 4.5. Snout 3.0. Width of preorbital 0.5. Thickness of body (abdomen) 7.0. Least depth caudal peduncle 5.5. Length caudal peduncle (vertical dorsal base end to vertical hypural end) 6.3. Vertical of snout tip to vertical dorsal origin 26.0. Length pelvics 7.6.

Color in alcohol dull yellowish brown, with 11 narrow dark vertical bars along the sides, the last on the caudal peduncle. Caudal fin with small blackish spots.

***Neofundulus ornatipinnis*, new species.**

Rivulichthys rondoni (nec Miranda-Ribeiro) Carter and Beadle, *Journ. Linn. Soc.*, London, (Zool.) vol. 37, 1931, pp. 329, 330, 339 (Makthlawaiya).

Holotype.—U. S. N. M. 94401, a male, 38 mm. standard length, from swamp at Makthlawaiya, Paraguayan Chaco (23° 25' S., 58° 19' W., about 60 miles to the West of the Rio Paraguay); collected by Dr. G. S. Carter and Mr. L. C. Beadle, 1926–1927; received by exchange from the British Museum (Natural History).

I place this species in *Neofundulus* (see Myers, *Ann. Mag. Nat. Hist.*, (9) vol. 19, 1927, pp. 116–118) with considerable hesitation. Its fin counts are higher than those of *N. paraguayensis*, agreeing more closely with those of *Cynopocilus melanotaenia*. In fact the only thing that prevents placing *ornatipinnis* in *Cynopocilus* is the compressed form of the latter. It would seem that, for the present, the body form alone must constitute the sole distinguishing feature of *Neofundulus*. *N. ornatipinnis* is much more like *paraguayensis* than *C. melanotaenia* in general appearance and form. In describing the new form I have been fortunate in having at hand the holotype of *N. paraguayensis* for direct comparison, as well as an example of *C. melanotaenia*. In giving each measurement and count of *ornatipinnis*, I have placed the corresponding figure for *paraguayensis* immediately

after, in parenthesis.² It may be remarked that the new species has little similarity to *Rivulichthys rondoni* (see Myers, *loc. cit.*, 1927) which has a posteriorly placed dorsal fin (originating over the ninth anal ray) and a widely different fin count (dorsal 9, anal 15).

Dorsal and anal origins almost opposite, the dorsal originating over the base of the second or third anal ray, exactly as in *paraguayensis*. Body rather slender, much more delicately formed than in the thick-set, robust *paraguayensis*. Pelvic fins placed much as in *paraguayensis*, their bases separated by a very slight interspace. Caudal peduncle longer, dorsal and anal rays more numerous, body more slender, and scales smaller than in *paraguayensis*.

Dorsal 15 (broken in *paraguayensis*, probably 12). Anal 18 (14). Caudal 5-18-5 (3-18-3). Pectoral 14 (13). Pelvics 7 (6). Scales lateral 37 (34) plus several on caudal base in each species; transverse from dorsal origin to anal origin $\frac{1}{2}$ -11- $\frac{1}{2}$ ($\frac{1}{2}$ -10- $\frac{1}{2}$); predorsal to above pupil 31 (26), in each case the number being only approximate due to injury; around caudal peduncle 20 (16). Vomerine teeth present in both species. Gill-rakers 10 (8). Branchiostegals 5 (not counted in *paraguayensis* due to injury).

Measurements in millimeters.—Standard length 38.0 (44.5). Total length 47.0 (57.0). Depth 8.5 (11.5). Head 10.0 (12.0). Eye 3.0 (4.0). Interorbital (not bony) 4.75 (5.0). Snout 2.3 (3.6). Width preorbital 0.5 (0.7). Greatest thickness of body (opercular region) 7.0 (9.0). Least depth caudal peduncle 5.0 (6.5). Length caudal peduncle (vertical of end or dorsal base to vertical of end of hypural fan) 5.3 (5.6). Vertical of snout tip to vertical of dorsal origin 26.0 (32.0). Length pectorals 9.5 (11.0). Length pelvics 5.0 (5.3).

Body plain light brownish, paler on belly. A conspicuous, black, vertically elongated humeral spot just behind and somewhat above base of pectoral fin. Dorsal nearly clear basally, rest of fin marked with three series of brown spots on the membrane between the rays, the outer series near the edge of the fin. Caudal plain dusky. Anal dark at the base, this being followed in outward succession by a wide clear stripe, a dark line formed of a series of brown spots on the membrane between the rays, and a broad brownish edging to the fin. The brown edging takes up nearly half the height of the anal, and a short distance out from the series of brown spots this marginal brown is faintly aggregated into another such series of spots. Pelvics almost clear. Pectoral with several irregular series of brown spots crossing the fin on the membranes.

In *paraguayensis* the body color is brownish. Four dark brown ill-defined longitudinal streaks running forward from the caudal base and fading a little before the dorsal and anal origins. These stripes make the lighter ground color between them look like light lines. The caudal is not pale dusky, but is boldly marked with irregular series of brown spots. Other fins marked much as in *ornatipinnis*. There is no humeral blotch in *paraguayensis*.

² My observations do not coincide in many points with Eigenmann and Kennedy's original description of *Fundulus paraguayensis* (*Proc. Acad. Nat. Sci. Philadelphia*, 1903, p. 530).

***Corydoras leopardus*, new species.**

Holotype.—U. S. N. M. 93305, 41 mm. standard length; Brazil (probably the Amazon or one of the coastal streams immediately to the south); collected in 1933 by Karl Griem; received from Mr. Richard Büttner of New York.

Paratype.—U. S. N. M. 93306, 23 mm. standard length; same data.

A *Corydoras* very close to *C. trilineatus* Cope (*Proc. Acad. Nat. Sci. Philadelphia*, vol. 23, 1871, p. 281, pl. 6, fig. 2a–2c; Ambyiacu River) in structural features and color pattern, but differing in the greater depth of the adult; the presence of four instead of two azygous plates in front of the adipose fin; the smaller eye; the longer snout; the presence of a conspicuous dense mottling of small blackish spots over the upper two-thirds of the body, as well as on the head, cheeks and snout; the different shape and position of the black blotch on the dorsal fin; and the non-festooned lower lip.

Body deep and compressed, deepest at dorsal origin. Snout long, somewhat pointed in the holotype but more rounded in the paratype. Lower lip not festooned, connected with the jaw at all points, with a short fleshy barbel at each side of its midline and a long barbel at each rictus, in addition to the maxillary barbel. Coracoid processes leaving a wide area of the breast unarmed; a close-set mosaic of irregular scales covering the middle of the unarmed area. Pelvic fins originating under base of first soft dorsal ray. Anal origin directly under origin of adipose. Caudal fin deeply forked.

Dorsal I, 7½. Anal I, 6½. Caudal 4–12–4. Pectoral I, 9. Pelvic I, 6. Lateral scutes 22/21. Azygous plates 4. All these counts are identical in the paratype.

Measurements in millimeters (holotype first, paratype in parentheses).—Standard length 41.0 (23.0). Total length 58.0 (32.0). Head 13.5 (8.0). Snout 8.0 (4.0). Eye 4.0 (3.0). Interorbital (bony) 7.0 (3.5). Height of opercle 8.0 (5.0). Width of opercle 3.6 (2.0). Depth at origin of dorsal 17.0 (9.0). Least depth caudal peduncle 6.5 (4.). Length dorsal spine 10.5 (6.5). Length longest dorsal ray (first soft ray) 12.0 (7.0). Length longest anal ray (second branched ray) 7.5 (4.5). Length upper caudal lobe 16.5 (8.0). Length pectoral spine 11.0 (6.5). Snout tip to dorsal origin 22.5 (12.5). Greatest thickness body 10.0 (6.0). Length maxillary barbel 7.0 (2.5). All these measurements are taken from point to point, as indicated. Only the standard and total lengths are taken as to the vertical along the axis of the body.

Ground color in alcohol grayish brown. Upper two-thirds of body, the opercle, cheeks, snout, and top of head covered with a close mottling of small distinct, blackish spots. An unspotted light band as wide as the eye extends forward along the middle of the sides from the caudal base. This band is bounded above and below by a heavy aggregation of spots and along its middle runs a heavy black line covering the line of junction of the two series of lateral scutes. The effect of the whole is that of three dark lines, the middle one darkest and widest, running forward along the mid-sides

from the caudal base, as in *trilineatus*. In different individuals the three lines run further forward than in others. In the holotype they fade out under the end of the dorsal base but in the paratype they run forward nearly to the head.

A very large inky-black blotch on the first four soft dorsal rays and their membranes. The spot is separated from the fin margin by a variable clear area and in no case comes near the bases of the rays, which are clear. A few small irregular black spots on the posterior dorsal rays. Adipose with one or two small irregular black flecks. Caudal with six or seven transverse, curved black cross bars consisting of black spots on the rays only, the membranes being clear. Anal clear or with a few irregular spots on the rays which sometimes form three wavy bars; membranes clear. Pectorals and pelvics clear.

This species has been figured and the habits of a specimen I had under observation in an aquarium (the holotype) have been described in *The Aquarium*, Philadelphia, vol. 2, no. 8, Dec. 1933, pp. 188-189. The retouched photograph reproduced there is erroneous in showing the spots of the nape too vermiculated and in representing light ray lines running through the dorsal blotch. The same photograph, with a translation of part of my article, appeared also in *Aquarium*, Paris, 1934, no. 5, p. 77.

I have seen several hundred living individuals at different times in aquaria. The degree of roundness or sharpness of the snout varies considerably and small individuals are always more slender than adults. This species has lately been brought into the United States in large numbers as an aquarium fish by Mr. Karl Griem, the well-known collector and importer of Brazilian aquarium fishes. My two specimens were recently imported individuals collected by Mr. Griem and shipped to me alive by Mr. Richard Büttner of the Empire Tropical Fish Import Company of New York.

It should be noted that Mrs. M. D. Ellis (*Ann. Carnegie Mus.*, vol. 8, 1913, p. 409) has placed *Corydoras agassizi* Steindachner in the synonymy of *C. trilineatus*. *C. agassizi*, as Regan has rightly appreciated (*Ann. Mag. Nat. Hist.*, (8) vol. 10, 1912, pp. 213, 215) is certainly not the same as *trilineatus*. The living examples of *agassizi* I have seen bear little resemblance to Cope's figure of *trilineatus*.

TÆNIACARA, new genus.

Differing from *Nannacara* in the elongate form and the complete absence of a lateral line. No lobe on upper part of first gill arch. Gill rakers obsolete, reduced to tubercles which are visible only on the inner surface of the arch. Preopercle entire. Vertical fins naked. Maxillary hidden. Genotype the following species.

Tæniacara candidi, new species.

Holotype.—U. S. N. M. 93579, an adult male 38.5 mm. standard length, collected in the Amazon (middle), in 1934; received from Mr. Ed. Candidus of Morsemere, New Jersey, for whom the species is named.

Paratypes.—U. S. N. M. 93580, two half-grown specimens, 29 and 24 mm. standard length; from the same source.

Body slender, compressed, the depth 4 to 4.27 in standard length. Head 3.2 to 3.5. Eye large, 2.5 to 3.1 in head, its diameter much greater than interorbital. Caudal peduncle slightly longer than deep. Dorsal originating a little before vertical of end of opercle, its spines somewhat high, subequal in length beginning with the third. Caudal lanceolate, two or three of the median rays produced beyond the membrane (at least in the male). Anal originating under base of the twelfth dorsal spine. Tip of soft anal strongly pointed. Pelvics very long, the first soft ray greatly produced. Pectorals short and rounded, not reaching anal fin by more than half their length. Teeth conical, the outer row strong, the two or three crowded irregular inner rows of both jaws minute. Lips very thick and heavy. Maxillary concealed. Squamation of top of head stopping abruptly above middle of pupil. Opercles scaly, cheeks with a few excessively thin scales. The lateral line appears to be totally absent. Along the base of the dorsal fin membranes, there is what looks like a series of lines which at first sight would appear to be lateral line tubules, but no tubular structure can be detected under high magnification and manipulation. If this actually represents the lateral line, the structures are placed not on the scales but upon the basal membrane of the fin, thus differing from all Cichlids known to me.

Dorsal XVI, 6. Anal III, 6. Pectoral 11. Caudal 3-14-3. Pelvic I, 5. The lateral scale rows run obliquely upward to a very slight degree. The series from the mid-height of the opercle to the hypural end is 22; vertical series from anus to dorsal 7; predorsal 8. These counts are identical in the three specimens.

Measurements in millimeters of holotype and two paratypes.—Standard length 38.5, 29.0, 24.0. Head 11.0, 9.0, 7.5. Depth (at pelvic origin) 9.0, 7.0, 6.0. Eye 3.5, 3.0, 3.0. Snout 2.5, 2.0, 1.5. Interorbital (bony) 2.5, 2.0, 2.0. Length caudal peduncle (end anal base to vertical of hypural end) 6.5, 5.0, 4.0. Length caudal peduncle (end dorsal base to vertical of hypural end) 4.0, 4.0, 3.0. Least depth caudal peduncle 4.5, 3.5, 3.0. Greatest thickness of body (at opercular region) 5.0, 4.5, 3.7. Length third dorsal spine 10.0, 3.5, 3.0. Length caudal fin (including filaments) 16.0, injured in first paratype, 9.0 in second. Length pelvic 17.0, 10.0, 8.0. Length pectoral 6.0, 5.5, 5.0.

Ground color brownish. A broad black lateral band down the middle of the side, originating at the snout, passing through the eye, and extending out for a short distance on the caudal, where it ends abruptly although carried out to the tips of the central rays by a faint dark shade. The lateral band is one scale row in width and posteriorly it tends to spread vertically at scale junctions. It is bounded above by a light line originating in the scapular region and reaching the upper surface of the caudal peduncle. Back brownish with a tendency to be blocked off into definite darker areas. Lower parts light. An even broken dark line running back from pectoral base and fading out over anal. Dorsal plain brownish, the last few soft rays light with dark spots. Anal similar. Caudal, above the median faint longitudinal bar, light with a brownish margin along the distal terminations of the rays; below the median bar the caudal is dull

plumbeous. Pelvics with a faint dark shade. Pectorals clear. A thin, dark longitudinal bar bounding the orbit below. In the smaller paratype there is a faint dark bar extending downward from the anterior part of the eye and another downward across the preopercular angle from the lower posterior part of the eye.

In life the male holotype showed much metallic blue-green on the head and sides. Iris metallic blue-green. Upper middle part of caudal yellow, bounded terminally and superiorly with brownish. Middle caudal rays dark, lower ones purplish brown, the whole fin narrowly edged with metallic blue-green. When the fish is frightened the dark lateral band frequently entirely disappears, leaving a pattern of wide dark vertical bands or squarish blocks, an extension of the pattern seen on the back in the preserved fish.

The three type specimens were sent to me by Mr. Ed. Candidus of Morsemere, New Jersey, whose aquarium collection is famed for the ichthyological rarities it contains. The three fishes formed part of a recent importation from the Amazon, and, as has been the case with most recent shipments, they probably came from as far up the stream as the mouth of the Rio Negro, although this is not certainly known. I studied the types in an aquarium for several days before preserving them.

